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readily distinguished by the naked eye. It is more nearly allied to *P. dioica*, Magnus, but whether these two species are identical I can at the present moment hardly say.

King's Lynn, Eng.

CHARLES B. PLOWRIGHT.

Berteroa incana, placed by Bentham and Hooker under *Alyssum*, but known among other things by its bifid petals with expanded saccate bases, has appeared spontaneously in several places in our city. It was first seen by Mr. J. L. Bennett.

In a field with the above I have found a fine plant of *Sonchus arvensis*.

Providence, R. I.

W. WHITMAN BAILEY.

Rudbeckia Missouriensis.—This is between *R. hirta* and *R. fulgida*, but more closely allied to the latter. *R. hirta*, as compared with *fulgida*, commences to flower three weeks earlier. When cut through longitudinally the receptacle is narrowly conical, almost lanceolate. The leaves are wide in proportion to length, and remotely edged with minute serratures. The stems and leaves are very rough. The habit is widely branching.

R. fulgida begins to flower three weeks later, has a broadly ovate, somewhat triangular receptacle, narrow leaves, with remote toothed, deeply cut edges, and the stems and leaves clothed with short, soft hair. The habit is somewhat erect.

R. Missouriensis opens with *fulgida*, has still narrower leaves than *fulgida*, and the receptacle is broadly ovate as in *fulgida*, though more acute at the apex. But the narrow leaves are quite entire, and the whole plant more rough than even the rough *R. hirta*. There is a greater tendency in the ray-florets of *R. Missouriensis* to become "quilled," as the florists term it, than in those of the others.

T. MEEHAM.

Botanical Notes.

Histo-Chemistry of Plants.—In an interesting contribution to the "histo-chemistry" of plants (*Monatshefte*, v., 94) Herr Rosoll illustrates the light that can be thrown upon vegetable principles by studying them microchemically *in situ* in the plant. The first plant mentioned is *Helichrysum bracteatum*, the yellow flower-heads of which are well known as a variety of "everlasting flowers." This yellow color is very persistent, but when the dried flower-heads are dipped into borax solution to which hydrochloric acid has been added, the involucral leaflets become of a beautiful ruby-red color. Further investigation showed this yellow pigment to be a hitherto undescribed quinone-like substance, which Herr Rosoll has named "helichrysin." In the younger leaflets it exists in combination with protoplasm, whilst in the older ones it has its seat in the residual cell contents. Helichrysin is soluble in water, alcohol, ether and organic acids; insoluble in benzol, chloroform and carbon bisulphide; is colored purple-red by mineral acids and alkalies; and is precipitated by metallic oxides and their salts as a red colored extract. The same

body appears to be present in *H. orientale*, *H. fœtidum* and *Statice Bonduelli*. Passing to the fungi, the organs of fructification of *Peziza aurantia*, with their yellow disk and lighter outer side, were examined. It was found that the orange color is due to a new yellow pigment, that has been named "pezizin," which is present in the form of extremely minute drops combined with an oil-like substance that occurs dissolved in the plasma of the paraphyses. The pigment, which occurs also in *P. convexula*, may be dissolved out by alcohol or ether. Saponin was ascertained to occur in the living roots of *Saponaria officinalis* and *Gypsophila Struthium*, dissolved in the cell juice, from which it can be separated in small amorphous white particles by treatment of thin slices of the root with absolute alcohol or ether. In the dried roots and in quillaia-bark it occurs as an amorphous white or gray substance. By treatment with concentrated sulphuric acid and exposure to air, which gives rise to a yellow, then a bright red and afterwards a beautiful blue-violet color, saponin can be detected in the contents of all the cells of the middle bark of *Quillaia saponaria*.

Botanical Literature.

*On the Indian Species of Cyperus, with Remarks on some others that specially illustrate sub-divisions of the Genus.** By Charles Baron Clarke, F.L.S., F.R.S. With four plates.

This valuable contribution to Cyperology treats of many of our American species, based on specimens mainly by the older collectors in the Herbaria of Kew and Calcutta. Numbers of them are referred to older names than those found in our manuals, etc., and others regarded as species are reduced to varieties. The changes in nomenclature proposed by Mr. Clarke are as follows:

C. microdontus, Torr., and var. *Texensis*, Torr., including *C. Gatesii*, Torr., are referred to *C. polystachyus*, L., a widely distributed species in the warmer regions of the eastern continent, under the varietal name *holosericea*; *C. fugax*, Liebm., of Mexico, becomes var. *paniculata* of the same species, and *C. Nuttallii*, (Eddy) Torr., becomes var. *filicina*, although, as Mr. Clarke remarks, it may best be regarded as a species; the form of the last-named plant described as *C. Cleaveri* by Dr. Torrey is also made a variety of *C. polystachyus*, var. *Cleaveri*; the original specimens from Monmouth Co., N. J., as well as recent ones collected by Mr. C. F. Parker at Cape May, N. J., with various intermediate forms between them and *C. Nuttallii*, indicate, as Dr. Torrey later suggested, that it is merely a depauperate form of this plant, not worthy of varietal rank. In these reductions Mr. Clarke follows the ideas of Bœckeler. *C. divergens*, Chapm., is made *C. leucolepis*, Carey, MS. *C. ambiguus*, Liebm., of Mexico, becomes *C. Olfersianus*, Kunth. *C. diandrus*, Torr., var. *castaneus*, Torr., is restored to specific rank under the name *C. rivularis*, Kunth, a change in which we are not ready to concur. The *C. flavicomus*, Torr., Mex. Bound. Survey, is referred to *C. Hochstetteri*, Nees. *C. inflexus*,

*Journ. Linn. Soc., xxi., 1-202.